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14. ABSTRACT The great technological leaps in communications, information technology and precision munitions have spawned a "Revolution in Military Affairs" to leverage the information age to produce a new paradigm of warfare. One product of this revolution is the concept of "Shock and Awe," which advocates achieving rapid dominance of an adversary by the application of military force of such magnitude, precision and swiftness that it stuns the enemy, breaks his will and makes further resistance appear futile. In theory, "Shock and Awe" will force a quick capitulation by the enemy with forces that may even be smaller in number than the enemy's forces. An operational art critique of "Shock and Awe" reveals the strengths and weaknesses of the concept. It identifies its roots in the coercive air power theories of Boyd and Warden, details the significant burden intelligence carries in conducting a "Shock and Awe" operation, notes the impact the "fog" and "friction" of war could produce and outlines the inherent difficulties of targeting the enemy's will as a center of gravity. "Shock and Awe" is a concept worthy of consideration by combatant and joint task force commanders, but must not become a sole strategy for winning a major conflict.					
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"SHOCK AND AWE": AN OPERATIONAL ART CRITIQUE

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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Abstract of
SHOCK AND AWE: AN OPERATIONAL ART CRITIQUE

The great technological leaps in communications, information technology and precision munitions have spawned a “Revolution in Military Affairs” that seeks to leverage the information age to produce a new paradigm of warfare. One product of this revolution is the concept of “Shock and Awe,” which advocates achieving rapid dominance of an adversary by the application of military force of such magnitude, precision and swiftness that it stuns the enemy, breaks the will to resist and makes further resistance appear futile. In theory, “Shock and Awe” will force a quick capitulation by the enemy with forces that may even be smaller in number than the enemy’s forces.

An operational art critique of “Shock and Awe” reveals the strengths and weaknesses of the concept. It identifies its roots in the coercive air power theories of Boyd and Warden, details the significant burden intelligence carries in conducting a “Shock and Awe” operation, notes the impact the “fog” and “friction” of war could produce and outlines the inherent difficulties of targeting the enemy’s will as a center of gravity. “Shock and Awe” is a concept worthy of consideration by combatant and joint task force commanders, but must not become a sole strategy for winning a major conflict.

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Introduction

Throughout the 1990s, the U.S. military actively pondered the question of how to leverage information age technology to enhance the combat power of its forces. The “Revolution in Military Affairs” rising from these studies seeks to capitalize on the great technological leaps in communications, information technology and precision guided munitions to create greater lethality and efficiency. Armed with the wizardry of twenty-first century information technology, can a smaller force, possessing total knowledge of the battlespace, networked to pass this knowledge at unprecedented speed and equipped with weapons of extraordinary accuracy and power, cause the swift capitulation of its foe without requiring the huge massed forces of previous conflicts? One path where the Revolution has led is to the concepts of “Shock and Awe” and “Rapid Dominance.”

First proposed by Harlan K. Ullman and James P. Wade in their 1996 study *Shock and Awe: Achieving Rapid Dominance*, “Shock and Awe” is the application of military force of such magnitude, precision and swiftness that it stuns the enemy, breaks the will to resist and makes further resistance appear futile. The “Rapid Dominance” concept focuses on crushing the enemy’s will quickly and simultaneously with the destruction of its military, using a force that may actually be smaller than the enemy force.¹ This concept appears to be a complete departure from the overwhelming force construct espoused in the “Decisive Force” philosophy that rose from Operation Desert Storm. In *On War*, Clausewitz states those objects that must be destroyed or conquered in war are the enemy’s military force and its country, but to bring about the war’s conclusion, the enemy’s will must be broken as

well.² Achieving the Clausewitzian goal of crushing the enemy's will, while using smaller forces and inflicting less death and destruction overall, is truly the Holy Grail of warfare. But can Rapid Dominance really accomplish this? This paper will outline the theory behind Harlan and Wade's approach to warfare and analyze it using the concepts of operational art. This analysis will show that "Shock and Awe," while having much merit as a warfare theory, is also an extremely risky concept and should not be the sole strategy a combatant or joint task force commander uses to win a major regional conflict.

The Shock And Awe/Rapid Dominance Concept

The goal of Rapid Dominance is, "to affect the will, perception and understanding of the adversary to fit or respond to our strategic policy ends through imposing a regime of Shock and Awe."³ To achieve success, Rapid Dominance must "impose this overwhelming level of Shock and Awe against an adversary on an immediate or sufficiently timely basis to paralyze its will to carry on . . . to seize control of the environment and paralyze or so overload an adversary's perceptions and understanding of events that the enemy would be incapable of resistance at the tactical and strategic levels."⁴ Ullman and Wade further assert, "total mastery achieved at extraordinary speed and across tactical, strategic and political levels will destroy the will to resist . . . the goal is to use our power with such compellance that even the strongest of wills will be awed."⁵ Ideally, Rapid Dominance can be achieved with a smaller force, inflicting less damage and fewer casualties on the

enemy, but striking with such swiftness and precision that continued resistance would seem hopeless.⁶

The Rapid Dominance concept rests upon four vital characteristics: knowledge, rapidity, brilliance and control of the environment. Knowledge in this sense means maximum knowledge of the environment, the adversary, and one's own forces on political, strategic, economic and military/operational levels. Greater than the "dominant battlefield awareness" concept, it means a greater requirement to get into the adversary's head and the need for a greater cultural understanding of the foe. Such a high level of knowledge is necessary to determine how best to break the enemy's will to resist and what things to target to produce the intended Shock and Awe.⁷ Rapidity emphasizes the level of swiftness required to be faster than the enemy so that one strikes faster than the adversary's decision loop can function. Control of the environment includes complete management of intelligence and information as well as deception. Brilliance refers to "maintaining the highest levels of operational competence, and through a superiority of knowledge, maintaining the ability to impose Shock and Awe through continuously surprising and psychologically and physically breaking the adversary's will to resist."⁸

The Shock and Awe/Rapid Dominance concept blends John Boyd's and John Warden's theories of strategic paralysis with network-centric warfare concepts and the advances made in precision munitions to form its foundation. Boyd argues one should plan to attack with a variety of actions executed with the greatest possible rapidity. The attacks must penetrate an adversary's ". . . moral-mental-physical being to dissolve his moral fiber, disorient his mental images, disrupt his operations

and overload his system.”⁹ Depicting all rational human decision-making as occurring in a cycle called the “OODA Loop (Observe, Orient, Decide, Act),” Boyd argues that in conflict, the winner will be the combatant who steps more quickly through this loop, thus moving and acting within an adversary’s decision cycle. The rapidity characteristic of Shock and Awe is based on this principle. John Warden defines the enemy as a “system” consisting of five concentric rings, each reflecting a center of gravity. The rings, from the center, are leadership, organic essentials, infrastructure, population and fielded military.¹⁰ Warden assesses the leadership ring as the most critical ring, for it is “the only element of the enemy that can make concessions, that can make the very complex decisions that are necessary to keep a country on a particular course, or that can direct a country at war.”¹¹ In short, the center leadership ring is the source of the enemy’s will and the true target of Shock and Awe; however, simultaneous strikes across all five rings (parallel war) induce the sense of hopelessness and create the sense of Shock and Awe.¹²

Shock And Awe In A Major Regional Conflict

In response to a major regional crisis, the Shock and Awe concept envisions an initial response with air/missile strikes and special forces operations within one to three days of the start of the crisis. A joint task force of corps size with more massive power will respond within five to ten days, with a second corps following in ten to thirty days.¹³ Its goal is a Rapid Dominance force of as few as 2,000 troops that could defend against 10-20,000 enemy troops while waiting for the full corps to deploy. The earliest arriving units will begin destroying the enemy using stand-off

capabilities. Forces will flow in a “rolling deployment” fashion according to a time-phased plan. Protection during the build up of forces would come from superior, rapid firepower and control of the environment, cloaking the enemy and making him blind to all but what he is allowed to see. This would also contribute to Shock and Awe, helping to break the enemy’s will.¹⁴

In a companion piece to the original Shock and Awe study, *Rapid Dominance: A Force For All Seasons*, Ullman and Wade further draw their picture of Shock and Awe in a major regional conflict. Containing futuristic concepts like “global artillery,” “bedlam brigades,” and extensive use of unmanned aerial vehicles, it lays out a basic concept of rolling assault waves: global artillery (light gas/coil technology guns) and electronic intrusion; land based aircraft (B-2 and cruise missile) strikes and continued information warfare operations; and maritime based air/cruise missile assaults.¹⁵ If the enemy continues to resist, the first three waves will continue unrelenting attacks on the enemy while a fourth wave of light ground forces, centered around 5,000 troop “bedlam brigades,” contains the enemy attack and continues to attrit enemy forces. These brigades will be deployed within five days from conflict start. If this maneuver does not drive the enemy to surrender, heavy ground forces will deploy. Attrition of enemy forces from the first four waves will continue during the several weeks the heavy forces will require to become combat ready in the theater.¹⁶

Ullman and Wade’s vision of Shock and Awe in a major regional conflict is actually less revolutionary than it initially appears. The futuristic weaponry, innovative force structures and the incredibly short timeline for deploying a corps

sized force are cutting edge concepts that currently exceed the U.S. military's fielded technology and strategic mobility capability. The strategic thought behind the waves of air/cruise missile assaults, however, is hardly new. Although it includes special forces, information warfare operations, and the use of ground troops, Shock and Awe, from the heavy influence of Boyd and Warden, is at its heart an extension of the coercive air power philosophies that arose after Operation Desert Storm. Shock and Awe is a more dynamic and intense variation of the military decapitation/strategic paralysis concept of coercive air power.¹⁷ Using the speed, firepower and timely, accurate targeting capabilities available through today's netted command and control systems and precision munitions, Shock and Awe seeks to succeed where other strategic bombing theories have failed. Through lightning-quick, accurate and devastating attacks, Shock and Awe hopes to force capitulation quickly by coercing the enemy into a sense of hopelessness. At best, Shock and Awe yields a quick victory; at worst, it results in such great attrition of the enemy forces that a smaller force can be used for the final ground attack.¹⁸

A View Of Shock And Awe Through The Prism Of Operational Art

Operational Factors: Time-Space-Force. Analyzing Shock and Awe using the concepts of operational art clearly identifies both its strengths and limitations. The operational factors of time, space and force highlight the revolutionary nature of Shock and Awe/Rapid Dominance. As the term "Rapid Dominance" indicates, the key operational factor with Shock and Awe is the interrelationship between time and force. As Ullman and Wade indicate, "Rapid" implies controlling the dimension of

time--moving more quickly than an opponent, operating within his decision cycle, and resolving conflict favorably in a short period of time. "Dominance" refers to total control of the battle situation.¹⁹ Shock and Awe trades one element of force, size, for time (speed in operations) and another element of force (lethality of firepower). This swiftness of operations begins immediately upon the onset of hostilities. As stated earlier, Shock and Awe envisions air/missile strikes and Special Forces' operations within one to three days of the start of conflict to gain the initiative immediately. To hold and sustain the Shock and Awe regime, a corps size joint task force will arrive within five to ten days. If required, a second corps could respond in ten to thirty days.²⁰ The application of force must be rapid and simultaneous, striking the targets the adversary holds dear with such speed the adversary's command structure cannot adapt. Netted command and control systems enhance both the time and force factors, quickly translating the total knowledge of the battlespace into targets that can be attacked with lightning speed. Time and force relate directly to the Shock and Awe/Rapid Dominance core characteristics of rapidity, knowledge (as it relates to where to concentrate force to achieve Shock and Awe) and brilliance (as it relates to orchestrating the application of force to achieve Shock and Awe.)

While not as critical as the time and force operational factors, the space factor requires consideration as well. With the requirement for near perfect knowledge of the battlefield, the size of the battlespace directly impacts the level of effort required to achieve this level of knowledge. The size of the battlespace also bears on the total area forces must address to achieve Shock and Awe, thus affecting the size of the force required and the ability to orchestrate the necessary force synchronization.

The control of the environment core characteristic involves the interrelationship between space, time and force. In the broadest terms, control requires “physical control of the land, air, sea and space and control of the ether . . . this requires signature management throughout the full conflict spectrum--deception, disinformation, verification, information control and target management--all with rapidity in both physical and psychological impact. By depriving an adversary of the physical use of time, space and ether, we play on the adversary’s will and offer the prospect of certain destruction.”²¹ The size of the battlespace thus determines the effort required to establish control of the environment.

In terms of the operational factors of time, space and force, Shock and Awe/Rapid Dominance reflects a new, innovative approach to warfare. But where in the time-force-space relationship does Shock and Awe fall short? First, the factor of time works both ways in a conflict. Presuming the United States is not the aggressor in the conflict, the adversary controls the time when the conflict starts. For example, if the enemy were to bury, hide, disperse or use other deceptive means to protect those things critical to sustaining the will to resist in anticipation of a U.S. response, then the intelligence effort becomes much more complicated, which may result in a failure to target those elements critical to sustaining the enemy’s will. Moreover, a prolonged political or diplomatic effort prior to the conflict may provide the enemy with an opportunity to prepare to weather the Shock and Awe storm. As will be discussed in greater detail later, if the enemy can endure the initial shock, prolong the conflict and inflict significant U.S. casualties, then he may earn a victory simply by avoiding defeat. In terms of space and force, a large battlespace makes

synchronizing consistently rapid and simultaneous Shock and Awe strikes more challenging. Finally, the Clausewitzian friction and fog of war will also negatively impact force employment, force size and the effect of force. Among the infinite number of unforeseen sources of battlefield friction are: the enemy's actions, human errors, fatigue, weather, and wrongly identified centers of gravity and decisive points.²² Friction can result in the application of force where it is less effective or impede the precise delivery of force where it is needed to achieve Shock and Awe. Such friction will significantly hamper the efforts of a smaller force seeking to compensate for force size by imposing Shock and Awe. In short, friction can degrade and impede the efforts of the forces attempting to impose Shock and Awe, ultimately precluding its successful achievement.

Operational Functions. Examining Shock and Awe in terms of operational functions also illustrates both its attributes and shortcomings. Shock and Awe incorporates the functions of operational maneuver and operational fires in its core characteristics of rapidity and brilliance. Striking within the reactive capabilities of the enemy's OODA Loop by bringing overwhelming, precise firepower to bear creates and sustains the realization of Shock and Awe. But decentralized command and control structures, preplanned actions of determined, capable enemies and failures to strike the right targets are points of friction that may undermine the Shock and Awe effort.²³ Netted command and control systems provide the architecture on which to amass and share the near-perfect knowledge of the battlespace and establish control of the environment. These networked systems are critical to the all four core characteristics of Shock and Awe. The rapidity required for effective Shock

and Awe demands netted command and control systems able to process information at a pace so rapid, friendly forces react faster than the enemy. Situational awareness of the battlespace means a tremendous volume of information must be accurately and instantly assessed and disseminated. Although netted command and control systems can make this happen, they do not eliminate friction. Information overload and the pressure of a demanding, rapid decision cycle can induce stress-related frictions that will counter many of Shock and Awe advantages.²⁴

The operational function with the greatest burden in the Shock and Awe/Rapid Dominance concept is operational intelligence. In *The Art of War*, Sun Tzu stated, “Know the enemy and know yourself; in a hundred battles you will never be in peril.”²⁵ Shock and Awe follows that dictum, requiring near perfect knowledge of the battlespace and driving intelligence efforts to levels unprecedented in scope, timeliness, accuracy and availability in real time.²⁶ Without dynamic, accurate and integrated intelligence, it is impossible to identify, target and impose Shock and Awe on the elements critical to supporting the enemy’s will. However, intelligence has been often described as the “science of guessing wrong”--based upon the intelligence community’s unfortunate but established record of occasional misinterpretations and erroneous assessments.²⁷ Such performance calls into question whether the intense levels of intelligence required by Shock and Awe can reasonably be expected. In his book, *Military Intelligence Blunders*, John Hughes-Wilson cites the blend of inefficiency, internal feuding and underestimation of potential adversaries that consistently results in intelligence organizations getting it

wrong. He contends the information revolution will not bring about significant change as long as the system is vulnerable to the vanities and frailties of humanity.²⁸ Moreover, Shock and Awe requires getting into the mind of the adversary, including a thorough cultural awareness, to understand what influences the enemy's will. It is extremely difficult to know any other nation, leader or people, however, in sufficient detail to predict behavior. This is perhaps even more true for countries whose lack of international power or whose distance from American strategic interests have left them in military and academic obscurity.²⁹ Thus, the intensity of the intelligence effort required to achieve Shock and Awe may likely be beyond the ability of the U.S. intelligence community to achieve.

The Enemy's Will As The Center Of Gravity

The aim of Rapid Dominance is to affect the will, perception and understanding of the adversary through Shock and Awe. This approach assumes the enemy's will is its center of gravity. In *On War*, Clausewitz asserted strength of will is not easy to determine and can only be estimated--another significant drawback to the Rapid Dominance concept.³⁰ Enemy will is an intangible factor extremely difficult to quantify. The international environment and the internal workings of foreign governments are unpredictable, influenced internally by the psychology and ideology of the national leadership and externally by real or perceived actions of other states and enemies.³¹ The inherent unpredictability of an adversary dramatically compounds the difficulty of establishing the knowledge required to target the enemy's will. Such unpredictability is also another source of

friction that will complicate a Shock and Awe strategy. Moreover, achieving victory through Shock and Awe requires a rational adversary, who will concede when it is overwhelmed and perceives further resistance is futile. Not every adversary is rational, though. Clausewitz discusses the “rational calculus” of adversaries choosing whether to enter or continue a conflict. However, history shows numerous instances of an “irrational calculus,” such as the Finnish resistance to the Soviet Union in 1939.³²

In a world where the United States military has no peer, any armed conflict opposing the United States is arguably an example of “irrational calculus.” As shown by Operation Enduring Freedom in 2001 and Operation Iraqi Freedom in the spring of 2003, the United States still finds itself in conflict on occasion. What drives the “irrational calculus” of nations and terrorist groups challenging the military might of the United States? In observing America in recent conflicts, potential adversaries have identified this nation’s center of gravity as its will to fight. If such a perception is valid, the following characteristics collectively form the American center of gravity: aversion to casualties (enemy and friendly) and collateral damage; sensitivity to domestic and world opinion; lack of commitment to fight wars measured in years rather than months; a focus on precision strike or high-technology options; and a commitment to international norms.³³ To attack this U.S. center of gravity militarily, enemies (by definition less capable) must take an asymmetrical approach. They must absorb the shock, maintain their will and use the advantage of the defensive to inflict casualties and prolong the conflict. The enemy goal is inevitably to force a stalemate, not achieve decisive victory.³⁴

In “Adaptive Enemies: Achieving Victory by Avoiding Defeat”, Robert H. Scales argues potential adversaries will use their inherent advantages of time, will to resist and the defensive position, interfering with U.S. intentions to end the conflict quickly with minimum cost. Future opponents will disperse their forces to protect them, massing locally when the opportunity arises to inflict casualties and prolong the conflict.³⁵ Scales further asserts the effect of firepower can be paralytic but also fleeting. Enemies can become inured to the effects of firepower and can be creative in ameliorating its destructive effects. An enemy who wisely marshals its time, mass, will, and defensive advantage can significantly diminish the superior firepower advantage of the U.S. military.³⁶ Hence, an adversary adopting such an asymmetric strategy may not be driven to instant capitulation by a regime of Shock and Awe.

Conclusion

Ullman and Wade’s currently popular Shock and Awe/Rapid Dominance concept is a provocative theory of how to leverage today’s technology into a strategic advantage for the United States military. However, computer networks, precision munitions, and information operations do not change the basic nature of warfare. While Shock and Awe/Rapid Dominance certainly has its merits as a concept, an exclusive embrace of such an approach would be extremely risky for a combatant commander to rely on to produce victory in a major regional conflict. By *de facto* “establishing” the enemy’s will as its strategic center of gravity, force is concentrated against an intangible, difficult-to-quantify point. In such a case, near perfect knowledge of the battlespace is required for targeting the elements of the

enemy's will. The demands for dynamic, accurate and timely intelligence are arguably beyond what the intelligence community has historically shown it can deliver. History shows no example of a bombing campaign forcing the capitulation of an adversary. As largely a decapitation/strategic paralysis concept of coercive air power, despite the quantum improvements in command and control systems and precision munitions, Shock and Awe cannot succeed without precise intelligence.³⁷

Even while achieving the Shock and Awe core characteristics of “knowledge,” “rapidity,” “brilliance,” and “control of the environment,” the friction and fog of war remain, and taken together, they will degrade any combatant's ability to impose Shock and Awe. Moreover, a rational, compliant enemy who will surrender once Shock and Awe is delivered is required. Such cooperation is unlikely and recent trends indicate potential adversaries will attempt to absorb the shock and attempt to prolong the conflict, forcing the proverbial “Vietnam-like quagmire” for the United States.

Ullman and Wade freely acknowledge the need to be careful when applying the Shock and Awe concept. In the prologue to *Shock and Awe: Achieving Rapid Dominance*, they state the following caveat: “Should a Rapid Dominance force be fielded . . . this force would be neither a silver bullet nor a panacea, and certainly not an antidote or preventative for a major policy blunder, miscalculation or mistake. It should also be fully appreciated that situations will exist in which Rapid Dominance may not work or apply because of political, strategic or other limiting factors.”³⁸ They specifically cite guerilla war as one instance where Shock and Awe may not be applicable. They further caution against overvisualizing Rapid Dominance versus

having the credible capabilities to execute it, stating “Rapid Dominance must still confront the fog of war. Decisions will still be made based on judgment and confidence in the intelligence provided, the estimate of threat intentions, knowledge of true center of gravity targets, and confidence in our own force capabilities to inflict Shock and Awe.”³⁹

Shock and Awe is not without merit. It largely stands up when measured against the concepts of operational art. It offers tremendous value in shaping the battlespace, which can lower the required force ratios and reduce the overall size of the force needed for a decisive force strategy, especially for ground forces. But Shock and Awe must not become a sole strategy for winning a major conflict. The combatant commander and joint task force commander must carefully weigh each situation, taking full advantage of all capabilities but not foregoing the time-tested tenets of operational warfighting for the transient embrace of a popular but ephemeral theory of “perfect” warfare.

NOTES

- ¹ Harlan K. Ullman and James P. Wade, *Shock and Awe: Achieving Rapid Dominance*, (Washington, DC: National Defense University Press, 1996), 16.
- ² Carl von Clausewitz, *On War*, trans. and ed. Anatol Rapoport (New York: Viking Penguin, 1968), 123.
- ³ Ullman and Wade, *Shock and Awe*, 10.
- ⁴ Ibid., 12.
- ⁵ Ibid., 14-15.
- ⁶ Ibid., 16.
- ⁷ Ibid., 96-97.
- ⁸ Ibid., 97.
- ⁹ David S. Fadok, "John Boyd and John Warden: Air Power's Quest for Strategic Paralysis" (Unpublished Master's Thesis, Air University, 1995), 15.
- ¹⁰ John A. Warden, "The Enemy as a System," *Airpower Journal* (Spring 1995) : 4.
- ¹¹ Ibid.
- ¹² Richard Szafranski, "Parallel War and Hyperwar: Is Every Want a Weakness?" In *Battlefield of the Future*, ed. Barry R. Schneider and Lawrence E. Grinter (Maxwell Air Force Base, AL: Air University Press, 1998), 127.
- ¹³ Ullman and Wade, *Shock and Awe*, 96.
- ¹⁴ Ibid., 99.
- ¹⁵ Harlan K. Ullman and James P. Wade, *Rapid Dominance: A Force for All Seasons*, (London: Royal United Services Institute for Defence Studies, 1998), 30-31.
- ¹⁶ Ullman and Wade, *Rapid Dominance*, 32.
- ¹⁷ Robert A. Pape, *Bombing to Win*, (Ithaca, NY: Cornell University Press, 1990), 79.
- ¹⁸ Ullman and Wade, *Rapid Dominance*, 33.
- ¹⁹ Ullman and Wade, *Shock and Awe*, 14.
- ²⁰ Ibid., 96.
- ²¹ Ibid., 140.
- ²² Milan Vego, *Operational Warfare*, (Newport, RI: Naval War College Press, 2000), 61.
- ²³ Pape, *Bombing to Win*, 319.
- ²⁴ Barry D. Watts, "Clauswitzian Friction and Future War," McNair Paper, no. 52 (Washington, DC: Institute for National Strategic Studies, October 1996), 127-8
- ²⁵ Tzu, Sun, *The Art of War*, ed. and trans. Samuel B. Griffin, (London: Oxford University Press, 1963), 84.
- ²⁶ Ullman and Wade, *Shock and Awe*, 83.
- ²⁷ James L. Boling, "Rapid Decisive Operations: The Emperor's New Clothes of Modern Warfare", *Essays 2002*, (Washington, DC: National Defense University Press, 2002), 50.
- ²⁸ John Hughes-Wilson, *Military Intelligence Blunders*, (New York: Carroll & Graf, 1999), 355.

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- ²⁹ Boling, "Rapid Decisive Operations," 50.
- ³⁰ Clausewitz, *On War*, 105; Michael I. Handel, *Masters of War: Classical Strategic Thought*, 3d ed., (London: Frank Cass, 2001), 85.
- ³¹ Boling, "Rapid Decisive Operations," 48.
- ³² *Ibid.*, 47.
- ³³ Robert H. Scales, Jr., "Adaptive Enemies: Achieving Victory by Avoiding Defeat," *Joint Force Quarterly*, (Autumn/Winter 1999-2000): 3; Daniel Byman and Matthew Waxman, "Defeating U.S. Coercion," *Survival* 41, no.2, (Summer 1999): 108.
- ³⁴ Scales, "Adaptive Enemies," 13.
- ³⁵ *Ibid.*
- ³⁶ *Ibid.*, 14.
- ³⁷ Pape, *Bombing to Win*, 322.
- ³⁸ Ullman and Wade, *Shock and Awe*, xix.
- ³⁹ *Ibid.*, 102.

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